

## **Historic, Archive Document**

Do not assume content reflects current scientific knowledge, policies, or practices.





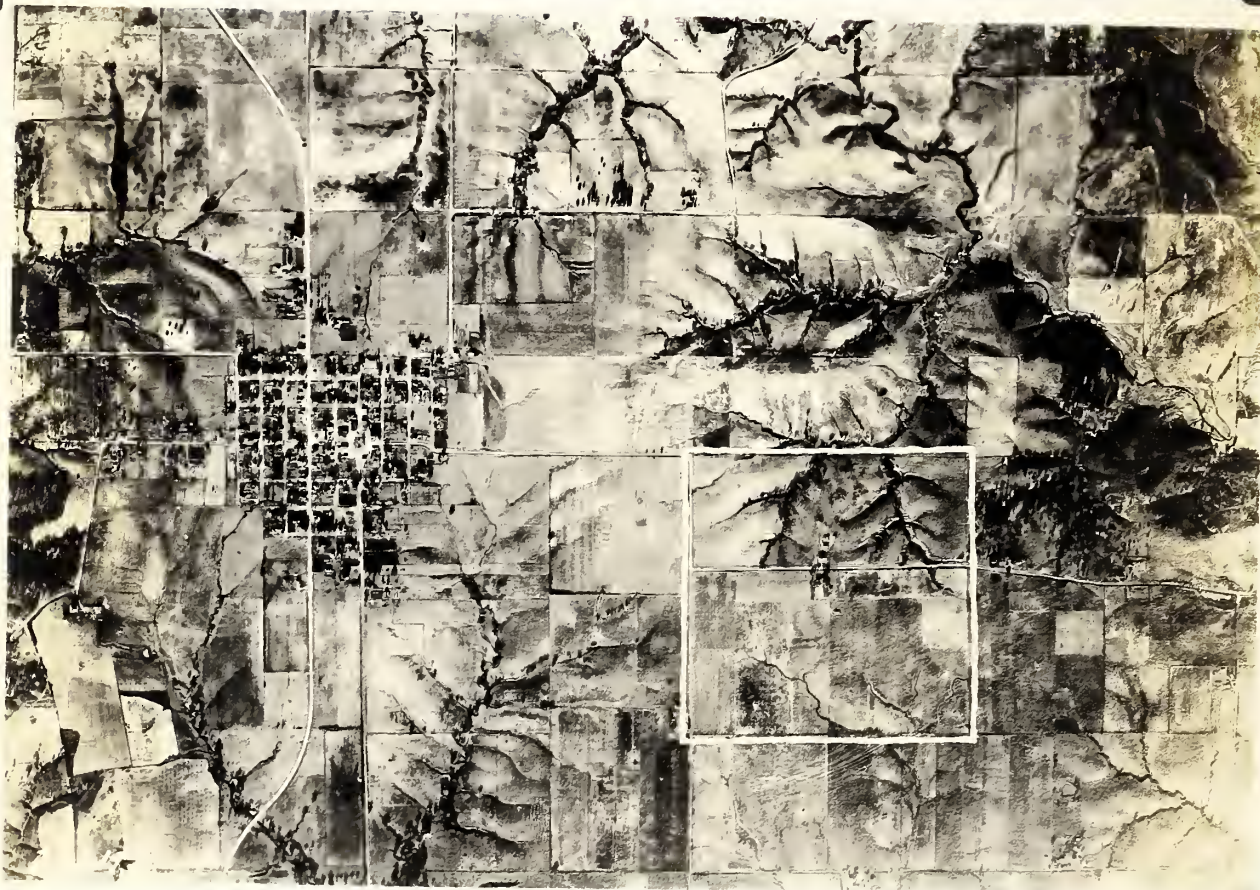
SOIL EROSION SERVICE

Bethany, Missouri.

Name Mr. Paul B. Strickler.



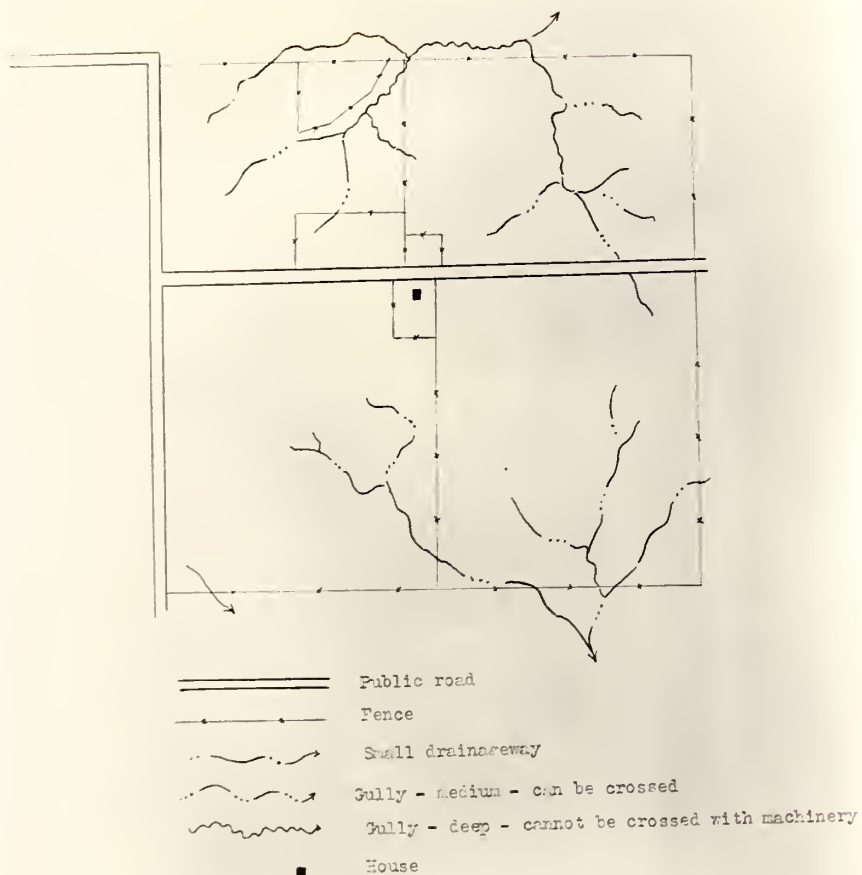
# MAPPING



Air plane view of farm vicinity of Eagleville. Base map  
is on opposite page.



BASE MAP OF FARM



2370.5

# MAPPING



-----Making base map  
with plane table.

Getting the slope  
of the land. -----



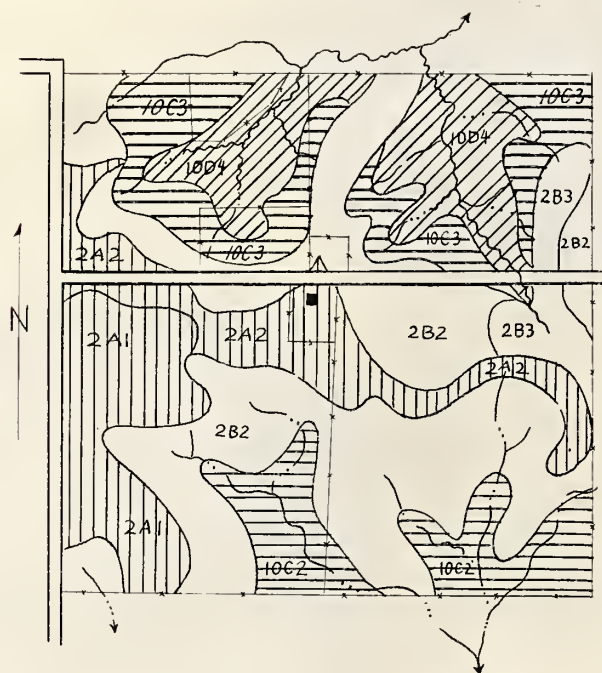
Determining amount of  
soil loss by studying  
-----the soil profile with  
aid of a long auger.



# SOIL EROSION FARM MAP

2-3678

SOIL EROSION FARM MAP



## Soil Types

- 2 - Grundy Silt Loam
- 10 - Shelby Loam

## Slope Classification

- 1 - 0 to 3%
- 2 - 3 to 7%
- 3 - 7 to 12%
- 4 - over 12%

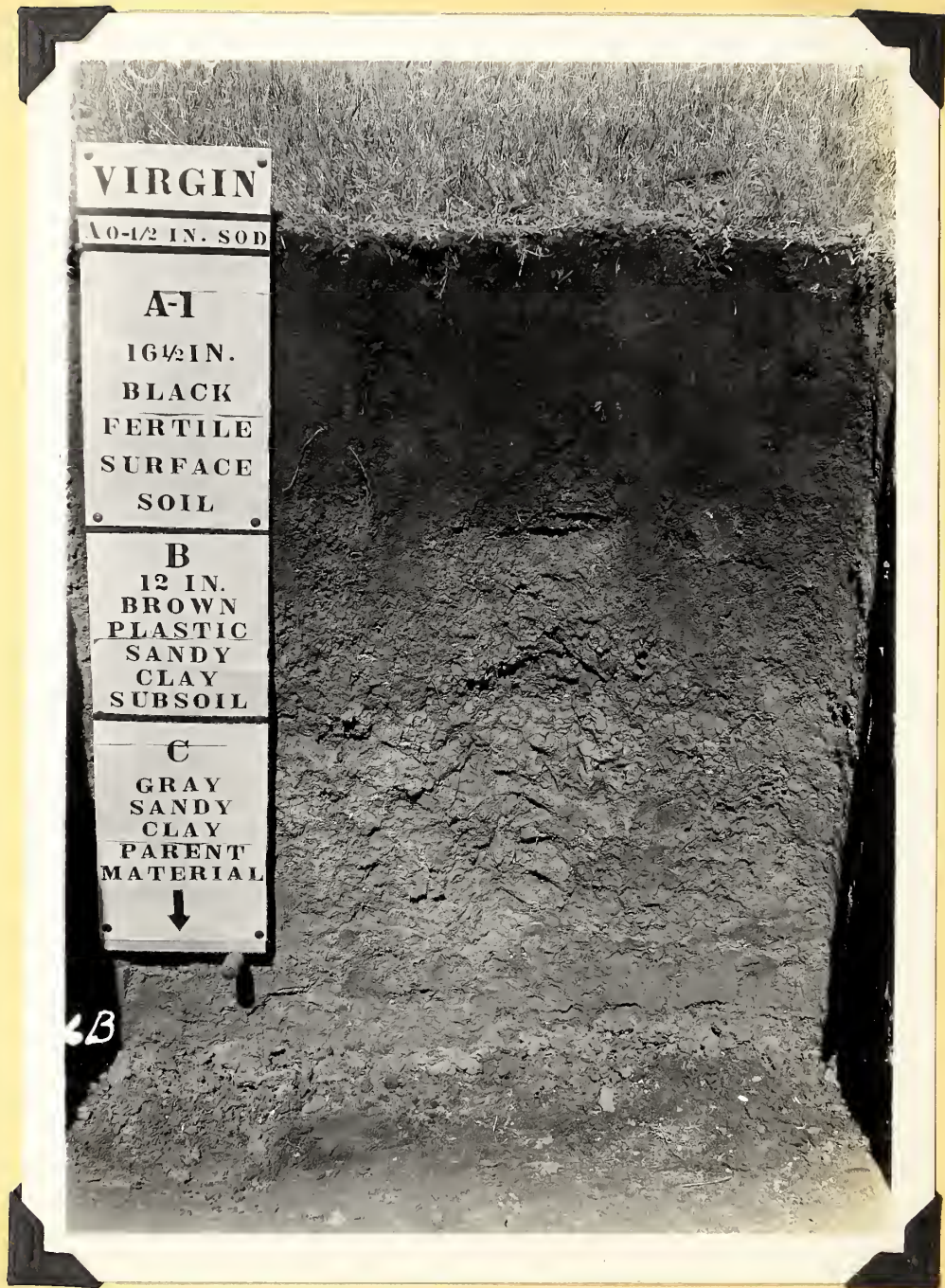
## Degree of Erosion Classification

- 1 - 0 to 25%
- 2 - 25 to 50%
- 3 - 50 to 75%
- 4 - over 75%

Legend: 10 - Shelby Loam, 2 - Grundy Silt Loam, 3 - 3 to 7% slope, 4 - over 12% slope, 1 - 0 to 25% erosion, 2 - 25 to 50% erosion, 3 - 50 to 75% erosion, 4 - over 75% erosion. Surface soil eroded.

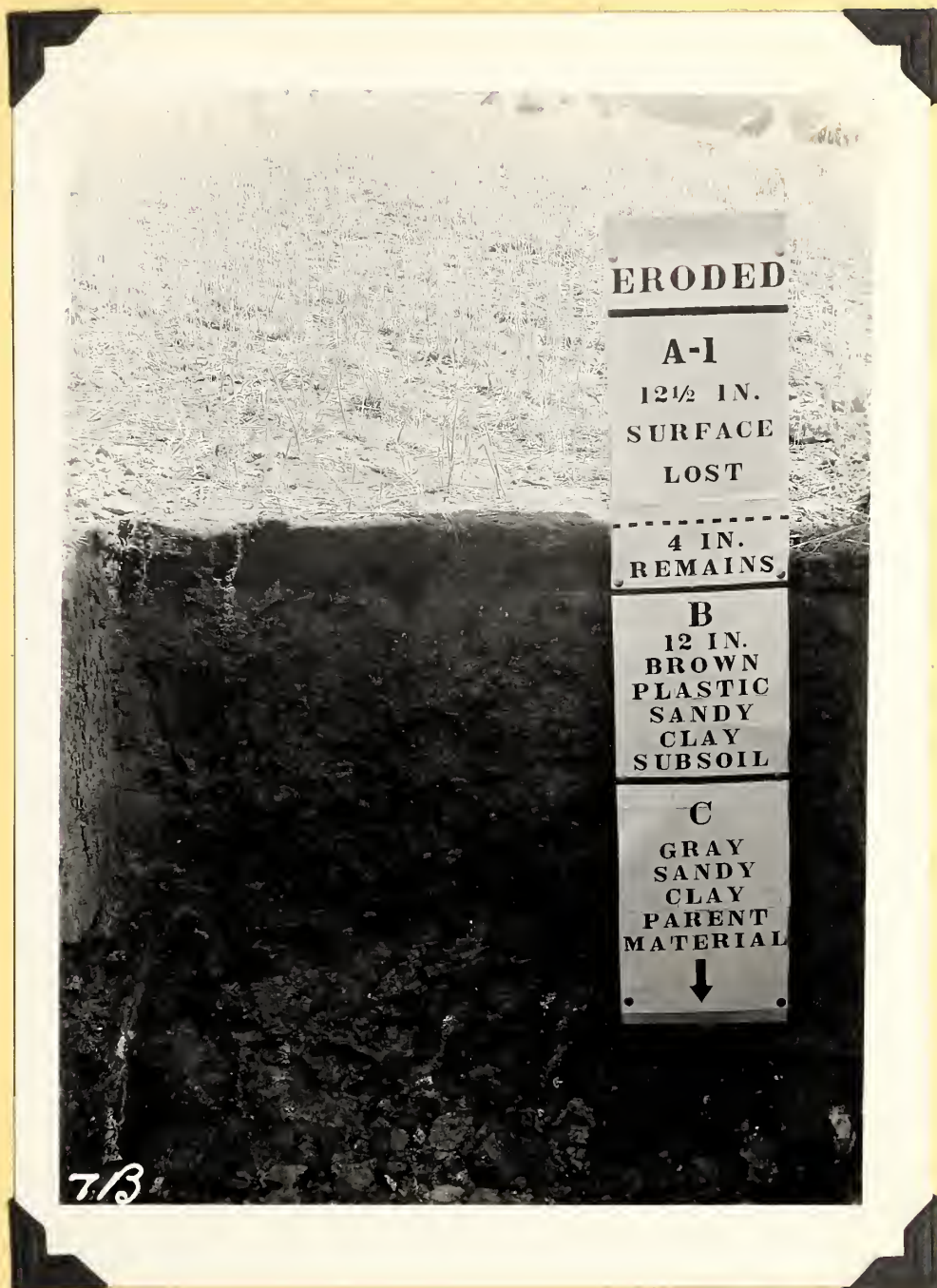


SOIL PROFILE



Our heritage of virgin soil - - - - -

SOIL PROFILE



-----next generation heritage of poorhouse soil.



THE NATIONAL MENACE

A prosperous soil - - - - -



- - - - -A prosperous farm family.



THE NATIONAL MENACE

Abandoned - - - - -



- - - - -because of erosion.



THE NATIONAL MENACE



. A discouraging trip back to boyhood scenes - - - - -

THE NATIONAL MENACE



-----he saw hordes of gullies.



FOLKS AND FIELDS NEED LIME



C. C. C. boys quarrying lime rock.



THE EFFECT OF DROUGHT ON PASTURE GRASS  
UNDER DIFFERENT DEGREES OF GRAZING



Left hand--Sod lightly grazed. 100% recovery

Top right- Sod taken from Lars Leetun farm closely grazed by sheep. Bluegrass 90% dead. Scattering growth surviving is quack grass.

Lower right--Medium heavy grazing, about 50% recovery.

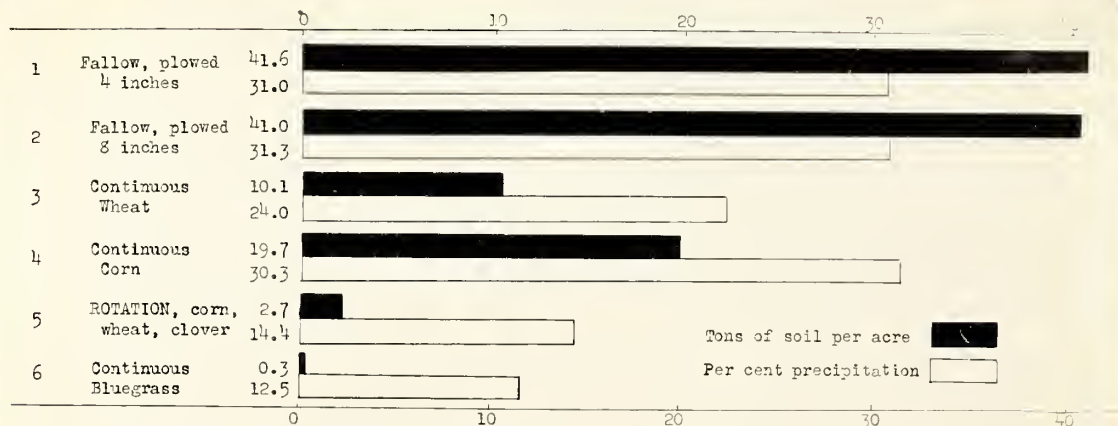
# GRAPHIC ILLUSTRATION OF SOIL AND WATER LOSSES

## OF SOILS UNDER DIFFERENT CROPS

## AND OF DIFFERENT GRADIENTS

Graph 3  
AVERAGE ANNUAL SOIL AND WATER LOSSES, 1918-31, inclusive

Source: Agricultural Experiment Station, Columbia, Missouri



Shelby loam, slope 3.68 per cent; mean precipitation, 40.37 inches  
Plots 1 to 6 inclusive, 6x90.75 ft.

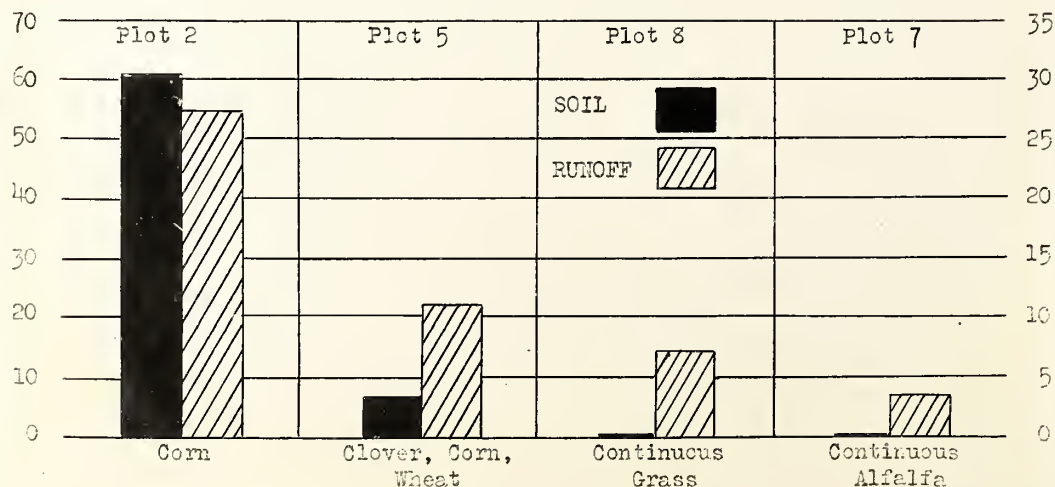
2-407B

## EFFECT OF CROPPING SYSTEM ON SOIL AND WATER LOSS

Source: Bethany Soil Erosion Experiment Station

Average annual losses for years 1931-2-3

Mean precipitation 33.54 inches



Note: Tentative results indicate that the increased vegetative growth of crops in rotation caused by the addition of lime and fertilizer to Shelby loam reduces soil and water losses.

2-577B  
577-1



# GRAPHIC ILLUSTRATION OF SOIL AND WATER LOSS FROM TANK PLOTS

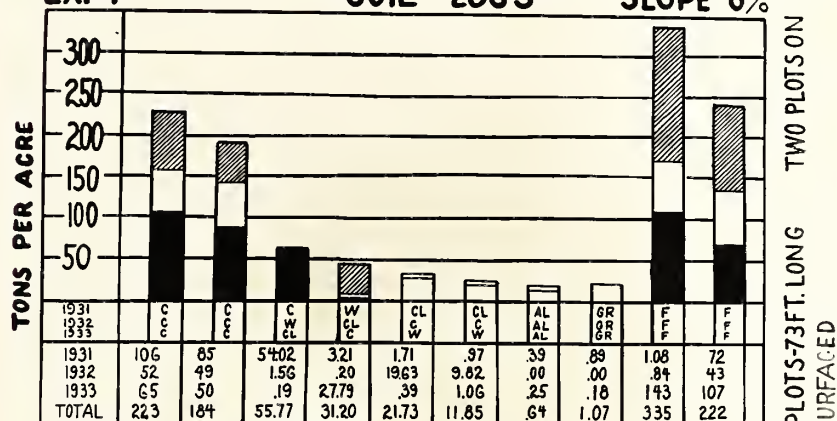
ON BETHANY FARM, YEARS 31-32-33.

## EFFECT OF CROPPING SYSTEM

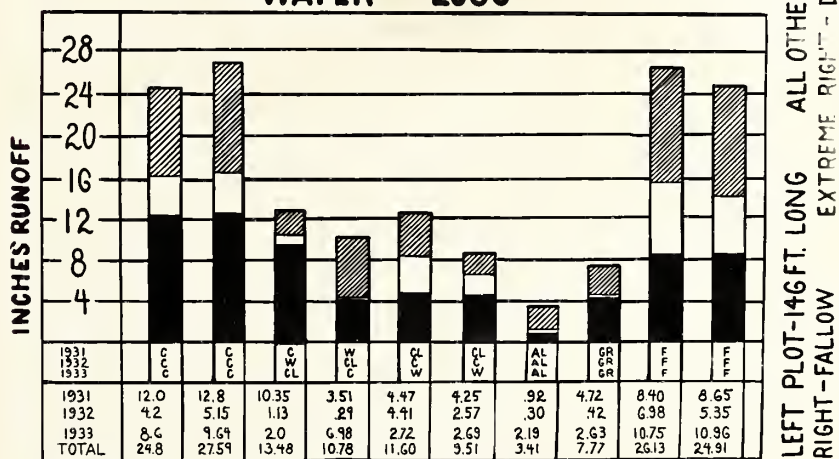
EXP I

SOIL LOSS

SLOPE 8%



## WATER LOSS



1931 1932 1933

U.S. SOIL EROSION EXPERIMENT STATION BETHANY, MO.

2-4863

BLACK LOCUST POST SET  
IN THE LOCATION SHOWN  
ON THE HENRY RHINEHART  
FARM IN 1901. POST  
13 YEARS OLD WHEN CUT.



SAME POST AS ABOVE SHOWING SOUND CONDITION AFTER 33 YEARS IN THE GROUND.

PICTURE TAKEN IN SPRING OF '34.



33 YEAR OLD BLACK LOCUST GROVE



BLACK LOCUST GROVE FROM WHICH POST ON OPPOSITE PAGE WAS CUT.

ILLUSTRATES RAPIDITY OF GROWTH WITHOUT SPROUTING WHERE ROOTS ARE UNDISTURBED.



HENRY RAUCH'S PASTURE



A GOOD PASTURE PICTURE TAKEN FALL OF 1934. THE RESULT OF JUDICIOUS  
GRAZING.



SIMILAR WATERWAYS, SEC. 1-65-27, HARRISON CO., MO.



UPPER WATERWAY NEVER PLOWED

LOWER SHOWS ATTEMPT TO CONTROL EVIL EFFECTS OF PLOWING AND OVER CRAZING





STRIP-CROPPING SET-UP  
EROSION FARM, BETHANY, MISSOURI.



Illustrating the establishment of waterway by sod bags. (Note ridges in waterway.) Clover in foreground, corn in center, oats and clover in background, and alfalfa in extreme background.



"TWIN GULLIES" ON EROSION FARM, BETHANY.



Similar gullies illustrating two methods of control. The one to the right planted to black locusts and grass; the left hand gully has an earth fill, concrete spillway, showing center field from which 4 inch soil profile was taken.

ALFALFA ON STEEP LAND

"ROLLING ACRES"



Alfalfa seeded on virgin hill land without soil treatment, Decatur County, showing that alfalfa will grow on virgin Shelby soil and will hold soil when stand is established.



PORTION OF HANK RAUCH PASTURE AND CATTLE



This pasture produced 120 pounds of beef per Acre during the dryest year of a century, 1934. This beef sold for 9 cents per pound in the Fall, or a gross return of \$10.80 per Acre. Note accumulation of grass which it is believed is largely responsible for high carrying capacity of this pasture.

FOLKS AND FIELDS NEED LIME



Portable limestone pulverizer in operation.



FOLKS AND FIELDS NEED LIME



Making good use of relief labor.

FOLKS AND FIELDS NEED LIME



One of many limestone stockpiles.



LESPEDeza AND SWEET CLOVER



Lime makes these grow even in dry years.



ROW CULTIVATION



Plowing rows straight up the hill means  
heavy soil loss.



CONTOUR FARMING



Farming with the hill helps stop erosion.

STRIP CROPPING



Strips on the contour breaks the force of water  
and reduces soil erosion.



GRASSED WATERWAYS



Destroying the grass in waterways means gullies.



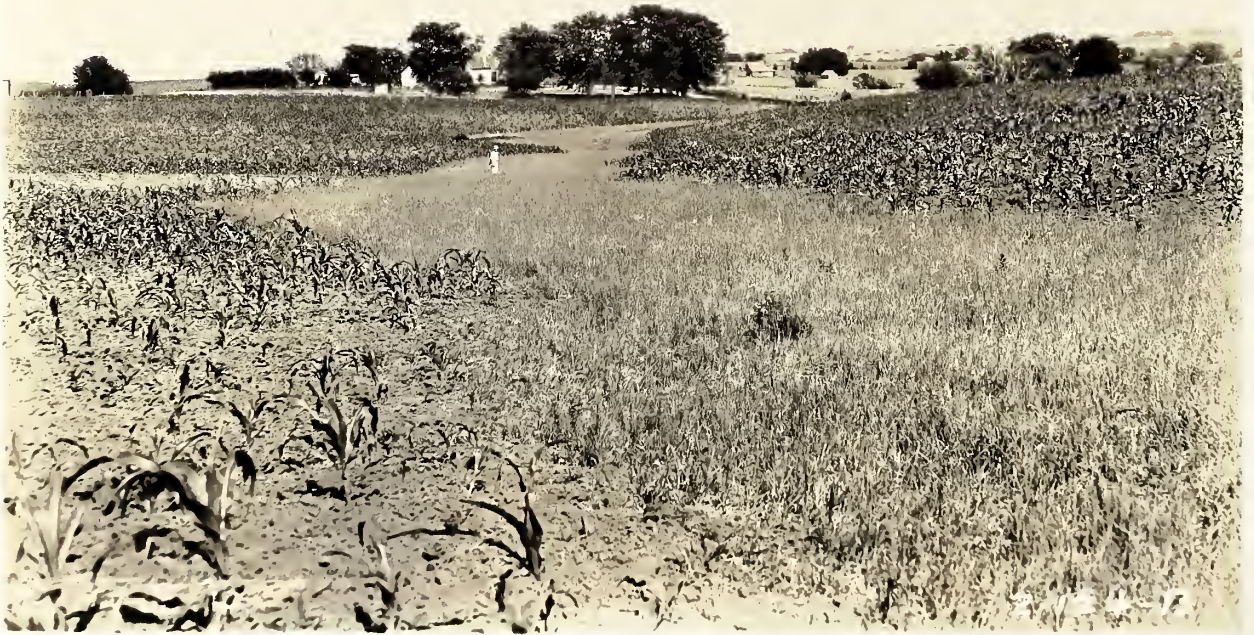
GRASSED WATERWAYS



Plowing parallel to grassed waterways means gullies.



GRASSED WATERWAYS



Mother Nature's way of preventing gullies.

GRASSED WATERWAYS



Soil loss after one rain because of lack of grassed  
waterways.



CULTIVATING STEEP LAND



A one-third of an inch of soil moved by one rain.

CULTIVATING STEEP LAND



Losing the farm by improper cultural methods.



T E R R A C E S



-----Laying out a terrace.

Building terrace-----



-----Checking a terrace.





TERRACES



Soil Erosion Service equipment used in  
terrace building.



TERRACE OUTLET



Well protected waterways take the terrace water  
down the hill.



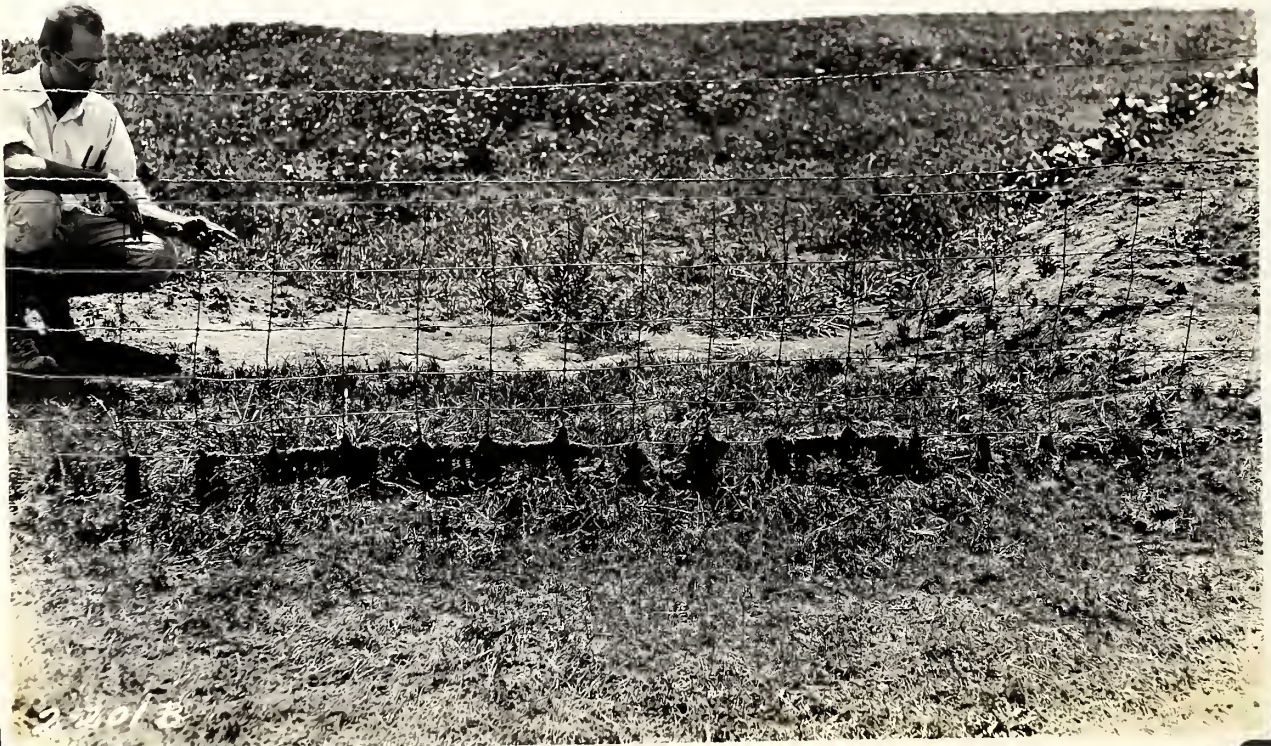
TERRACE OUTLET



Terrace outlet protected by sod bags.



TERRACE OUTLETS



Emptying terrace water onto a bluegrass pasture.



TERRACE WATER CONTROL



Header dam to protect highway drainage ditch from  
terrace water.



TERRACE WATER CONTROL



Terraces emptying into stock pond.

## TERRACE MAINTENANCE

Terraces, like anything else on the farm, must be maintained.



Furrow openers run straight over terraces soon  
destroy them.



G U L L I E S



A severe problem.

G U L L I E S



"Bulldozing" an earth dam in gully shown at left.



G U L L I E S



C. C. C. boys building a dam.

G U L L I E S



"Bulldozing" an earth dam.



G U L L I E S



U. C. C. boys making a spillway and building up dam.



M A T E R I A L S



C. C. C. boys cut trees for posts and brush.



# GULLIES



. A serious situation being corrected by diversion ditch and dams.



G U L L I E S



A woven-wire check dam in action.



G U L L I E S



A check dam after a rain.



G U L L I E S



C. C. C. boys constructing rubble masonry  
rock dam.



G U L L I E S



C. C. C. boys completing rubble masonry rock dam.



G U L L I E S



A drop-inlet dam being made out of highway culvert.



G U L L I E S



A double-post brush dam under construction.

G U L L I E S



Gully before tree planting.



G U L L I E S



. Gully after tree planting.

G U L L I E S



An old swimming hole has disappeared completely  
after these willows were planted.



F L O O D



U. S. Geological Survey Gauging Stations measure the amount of water running out of East Big Creek Watershed and measure its silt content.

F L O O D



Floods become more and more serious as erosion becomes more serious. Floods cause drouth on farm land.



F L O O D



Destructive floods such as these can be controlled by controlling erosion.